DERWENT-ACC-NO: 2002-257708
DERWENT-WEEK: 200230

TITLE: Microminiaturized trench capacitor production in semiconductor device
manufacture includes formation of top and bottom ruthenium electrodes and a
tantalum pentoxide dielectric film

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PRIORITY-DATA: 2000WO-JP05399 (August 11, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 200215275 A1	February 21, 2002	J	058	H01L 027/108

DESIGNATED-STATES: CN JP KR US AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
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INT-CL (IPC): H01L021/8242; H01L027/108

ABSTRACTED-PUB-NO: WO 200215275A
BASIC-ABSTRACT: NOVELTY - Process involves making a circular opening in an
interlayer insulating film, forming a lower **ruthenium electrode** by low-pressure
remote sputtering, and depositing a ruthenium on the side wall of a deep hole.

After the ruthenium film deposited on the top face of the interlayer insulating
film is removed, a dielectric film, e.g., Ta2O5, is deposited. Then an upper
ruthenium electrode is deposited.

DETAILED DESCRIPTION - To obtain the upper **ruthenium electrode,** Ru (EtCp)2 is
deposited by chemical vapor deposition, in which the material is transferred by
bubbling.

USE - Production of a microminiaturized trench capacitor.

ADVANTAGE - Under a condition (reaction rate-limiting condition) that the rate
of deposition of the ruthenium film depends on the forming temperature, an
upper **ruthenium electrode** with high coverage can be formed.

CHOSEN-DRAWING: Dwg.1d/9

TITLE-TERMS:
MICROMINIATURE TRENCH CAPACITOR PRODUCE SEMICONDUCTOR DEVICE MANUFACTURE
FORMATION TOP BOTTOM **RUTHENIUM ELECTRODE** TANTALUM DIELECTRIC FILM

DERWENT-CLASS: L03 U11 U12

CPI-CODES: L04-C11C2; L04-C14A;

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